

ABSTRACT

An efficient statistical remultiplexer for processing a number of channels that include video data. In one aspect, transcoding of the video data is delayed while statistical information is obtained from the data. Bit rate need parameters for the data are determined based on the statistical information, and the video data is transcoded based on the respective bit rate need parameters following the delay. In another aspect, a transcoding bit rate for video frames is updated a plurality of times at successive intervals to allow a closer monitoring of the bit rate. Minimum and maximum bounds for the transcoding bit rate, e.g., for buffer overflow and underflow protection, are also updated in each interval. In another aspect, the pre-transcoding quantization scales of the macroblocks in a frame are scaled to provide corresponding new quantization scales for transcoding based on a ratio of a pre-transcoding amount of data in the frame and a target, post-transcoding amount of data for the frame. The quantization scales are adjusted for different portions of the frame as transcoding progresses to ensure that a minimum amount of transcoding bandwidth is allocated to each macroblock.